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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Udo Steffl

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EXAMINER

LEE, RIP A

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/571,464	Applicant(s) STEFFL, UDO	
	Examiner RIP A. LEE	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 20, 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-14, 16-18 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-14, 16-18, and 21-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

This office action follows a response filed on March 20, 2008. Claims 1-6, 8-14, 16-18 were amended, and new claims 21-23. Claims 1-6, 8-14, 16-18, and 21-23 are pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 provides for the use of a composition, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 16 is also rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102 / 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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4. Claims 1-6, 11-13, 16, and 21-23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Masuyama *et al.* (U.S. 6,013,709) in view of evidence presented in Ishihara *et al.* (JP 62-187708; equivalent U.S. 4,680,353 relied upon for translation).

Masuyama *et al.* teaches a composition comprising a resin component containing (A) polyamide resin, (B) syndiotactic polystyrene resin, (C) compatibilizing resin, and (D) (un)modified rubbery elastomer.

Polymer (A) is polyamide-6 or polyamide-6,6, or those derived from adipic acid and *m*-xylylenediamine, *i.e.*, nylon-MXD6 (col. 4., lines 50-56).

The polystyrene component (B) exhibits greater than 85 % of racemic diads, as determined by ¹³C NMR spectroscopy (col. 3, line 55) and a weight average molecular weight of greater than 50,000 (col. 4, line 13). According to the inventors, and as shown in Preparation example 1, syndiotactic polystyrene homopolymer, labeled SPS, may be prepared according to the method taught in Ishihara *et al.*, JP 62-187708 (see col. 4, line 28). Turning to this reference, one finds that SPS with comparable molecular weight of 350,000 and 90 % racemic dyads has a melting point of 270 °C. Thus, it may be concluded that the polystyrenes of Masuyama *et al.*, prepared with similar catalysts and having comparable molecular weight and microstructure, exhibit a melting point within the claimed range of 160-310 °C.

Compatibilizing resin (C) is compatible with the polystyrene resin, and it contains a polar functional group that reacts with polyamide resin. A discrete example is styrene-maleic anhydride copolymer (col. 6, line 8). Styrenic graft copolymers also fall under the class of compatibilizing resin, and these include SPS modified with maleic anhydride, SPS modified with glycidyl methacrylate, and styrene-methyl methacrylate graft copolymer (col. 6, lines 14-22).

Component (D) is a rubbery polymer selected from SBR, SBS, SIR, SIS (mixed polymer of butadiene and/or isoprene with styrene), and SEB, SEBS, SEP, SEPS (non-polar olefin copolymer); col. 9, lines 32-34).

Suitable coupling agent and glass film forming auxiliaries for improving dispersion are disclosed in col. 13, line 25-col. 14, line 20. Further conventional processing aids such as

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nucleating agent, mold release agent, metal soaps, flame retardants, antistatic agents, reinforcing filler such as glass fiber (col. 13, line 20), and conductive filler such as carbon black, graphite, (col. 13, line 14), and ceramic fiber (col. 13, line 2). Filler constitutes 1-350 parts by weight of the entire composition (col. 14, line 30).

Compositions find use in manufacture of molded automobile parts (col. 1, lines 10-15). Masuyama *et al.* states that inventive compositions have excellent resistance to heat aging, however, the reference is silent with respect to heat deflection, Vicat softening temperature, E modulus, or coefficient of expansion. However, in view of the fact that the composition of the prior art is substantially the same as that described in the instant claims, a reasonable basis exists to believe that the composition exhibits substantially the same properties. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

5. Claims 5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyama *et al.* (evidence presented in Ishihara *et al.*) in view of Steffl (DE 101 34 142).

(a) Masuyama *et al.* discloses styrene-maleic anhydride copolymer as compatibilizing resin, as well as those derived from polystyrene (col. 6, lines 1-3) containing polar groups such as carboxylic acid amide groups (col. 5, lines 60 and 64). Masuyama *et al.* does not elucidate the structure of these polymers.

Steffl teaches use of poly(styrene-*co*-maleic acid imide) as compatibilizing polymer for preparation of syndiotactic polystyrene resin compositions (page 3, lines 1-8). The poly(styrene-*co*-maleic acid imide) contains 0.1-10 mole % of maleic anhydride groups have not been converted to imide and a weight average molecular weight of 80,000-20,000; see paragraph [0019]. The combination of references would have suggested to one having ordinary skill in the art to use the poly(styrene-*co*-maleic acid imide) of Steffl in the composition of Masuyama *et al.* because Masuyama *et al.* discloses use of polystyrene containing carboxylic acid amide groups, and the polymers disclosed in Steffl is a polystyrene containing cyclic carboxylic acid amide groups. Since Steffl teaches that poly(styrene-*co*-maleic acid imide) is an effective

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compatibilizing polymer for syndiotactic polystyrene compositions, it would have been obvious to one having ordinary skill in the art to use the poly(styrene-*co*-maleic acid imide) as compatibilizing polymer for the syndiotactic polystyrene compositions of Masuyama *et al.* Regarding the glass transition temperature of poly(styrene-*co*-maleic acid imide), since the poly(styrene-*co*-maleic acid imide) of Steffl is identical to the poly(styrene-*co*-maleic acid imide) recited in the instant claims, a reasonable basis exists to believe that it exhibits the claimed T_g . Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

(b) Masuyama *et al.* also discloses compatibilizing resin derived from polystyrene (col. 6, lines 1-3) containing polar groups such as oxazoline groups (col. 5, lines 60 and 64). Masuyama *et al.* does not elucidate the structure of these polymers. Steffl teaches that poly(styrene-*co*-methylvinylloxazoline) and poly(styrene-*co*-methylvinylloxazoline-*co*-acrylonitrile) are effective compatibilizing polymers preparation of syndiotactic polystyrene resin compositions (paragraph [0017]). The combination of references would have suggested to one having ordinary skill in the art to use poly(styrene-*co*-methylvinylloxazoline) and poly(styrene-*co*-methylvinylloxazoline-*co*-acrylonitrile), disclosed in Steffl, in the composition of Masuyama *et al.* because Masuyama *et al.* discloses use of polystyrene containing oxazoline groups, and the polymers disclosed in Steffl are polystyrenes containing the requisite oxazoline groups. Therefore, it would have been obvious to one having ordinary skill in the art to use poly(styrene-*co*-methylvinylloxazoline) and poly(styrene-*co*-methylvinylloxazoline-*co*-acrylonitrile) as compatibilizing polymer in the composition of Masuyama *et al.*, and one having ordinary skill in the art would have expected such an embodiment to result in a useful product. The combination is especially obvious because Masuyama *et al.* contemplates use of polystyrene polymer containing oxazoline groups, and Steffl fills in the otherwise missing element.

(c) Masuyama *et al.* discloses styrene-maleic anhydride copolymer as compatibilizing resin, but it does not teach use of poly(styrene-*co*-acrylonitrile). Steffl teaches that poly(styrene-*co*-maleic anhydride) and poly(styrene-*co*-acrylonitrile) are functionally equivalent

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compatibilizing polymers for preparation of syndiotactic polystyrene resin compositions (page 2, line 66-68). Thus, it would have been obvious to one having ordinary skill in the art to prepare make the composition of Masuyama *et al.* using poly(styrene-*co*-acrylonitrile) as compatibilizing resin because one having ordinary skill in the art would have expected functionally equivalent components to produce a useful product.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyama *et al.* (evidence presented in Ishihara *et al.*) in view of Paeglis *et al.* (U.S. 5,569,516).

Masuyama *et al.* teaches incorporation of carbon black filler, but the inventors have not elucidated the nature of the filler. Paeglis *et al.* discloses conventional carbon black having an average particle size of 10-100 nm, with a (BET, *i.e.*, N₂ adsorption) surface area of 30-1500 m²/g and a DBT absorption of 80-350 cm³/100g that is well suited as filler for thermoplastic resins. It would have been obvious to one having ordinary skill in the art, absent any showing of criticality or unexpected results, to use the carbon black shown in Paeglis *et al.* in the composition of Masuyama *et al.* in order to make a useful product. Since the prior art shows that this type of carbon black is used for compounding in thermoplastics, one having ordinary skill in the art would have expected the combination to work with a reasonable expectation of success.

7. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyama *et al.* (evidence presented in Ishihara *et al.*) in view of Takado *et al.* (U.S. 5,114,522).

Masuyama *et al.* discloses inventive compositions, which have excellent mechanical and chemical and heat resistant properties, find use in manufacture of molded automobile parts (col. 1, lines 10-15), but further details are not provided. Takado *et al.* discloses that automobile bumpers are prepared from high shock absorbing synthetic resins such as polystyrene (col. 2, line 20). The combination of references would have suggested to one having ordinary skill in the art that compositions of Masuyama *et al.*, which have excellent mechanical properties, are useful for making a car part such as a bumper. Therefore, it would have been obvious to one having ordinary skill in the art to make an automobile bumper using the composition of Masuyama *et al.*, and one having ordinary skill in the art would have reasonably expected to make such a molded article with a high degree of success. The skilled artisan also would have found it

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obvious to make such a molded article via blow molding because Takado *et al.* teaches this method for making automobile bumpers.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyama *et al.* (evidence presented in Ishihara *et al.*) in view of Saito *et al.* (U.S. 5,104,937).

Masuyama *et al.* teaches that inventive compositions find use in manufacture of molded automobile parts, however, the reference does not disclose the type of part. Saito *et al.* discloses high impact polymer compositions are useful for making injection molded automobile parts such as a door panel or quarter panel (col. 5, lines 26-38). Compositions of Masuyama *et al.*, while rigid, have excellent toughness properties, as well as heat and water resistance. One having ordinary skill in the art would have found it obvious to use such a composition for manufacturing a door panel or quarter panel since these articles would require the properties exhibited by the compositions in Masuyama *et al.*

Response to Arguments

9. Response to arguments are based on the previous office action dated November 7, 2007.

Claim 16 remains rejected under 35 U.S.C. 112, second paragraph/35 U.S.C. 101 because the claim recites a use without setting forth any steps involved in the method/process. The term “for molding” is not an active process step, but merely states an intended use.

The rejection of claims over Brissot (U.S. 2004/0110890) has been overcome by amendment.

The rejection of claim 15 over Masuyama *et al.* (U.S. 6,013,709) no longer applies due to cancellation of the claim.

The rejection of claims 19 and 20 over Masuyama *et al.* in view of Saito *et al.* (U.S. 5,104,937) no longer applies due to cancellation of the claim.

Applicant traverses the rejection of claims over Masuyama *et al.* (U.S. 6,013,709) in view of evidence presented in Ishihara *et al.* (JP 62-187708; equivalent U.S. 4,680,353 relied upon for translation). Applicant points to the fact that Masuyama *et al.* teaches addition of copper

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compound and iodine compound and argues that argues that the composition of the present invention does not require these compounds to obtain improved thermal properties.

This is not found persuasive because the instant claims recite a composition comprising a series of components, however, the term “comprising” does not exclude unrecited elements.

Applicant also points to use of modified polyphenylene ether in compositions of Masuyama *et al.* and argues that use of such modified polyphenylene ether can lead to unsatisfactory results. Applicant claims that Masuyama *et al.* does not disclose polystyrene copolymer or polystyrene graft copolymer.

In response, it is well settled that a reference must be considered in its entirety and that the disclosure of a reference is not limited to preferred embodiments or specific working examples therein. Rather, a reference is relevant for all it contains. *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 570 (CCPA 1982); *In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976). *In re Heck*, 669 F.2d 1331, 1333, 216 USPQ 1038, 1039 (Fed. Cir. 1983). Attention is drawn to Masuyama *et al.*, col. 6, lines 8-22, which clearly discloses compatibilizing resin (C) as styrene-maleic anhydride copolymer and SPS modified with maleic anhydride, SPS modified with glycidyl methacrylate, and styrene-methyl methacrylate graft copolymer.

Applicant argues that the reference does not disclose the property recited in amended claim 1 on the basis of working examples of Masuyama *et al.* which contains polyphenylene ether. Note however, that this is not the basis of the rejection. Applicant does not address the fact that Masuyama *et al.* does teach the claimed polystyrene copolymer or polystyrene graft copolymer. It is maintained that compositions containing the claimed polystyrene copolymer or polystyrene graft copolymer, meet the compositional requirements set forth in the instant claims. Accordingly, reasonable basis exists to believe that such composition exhibits the claimed property. The burden of proof was shifted to Applicant to establish any unobviousness differences, and apart from arguments of counsel, Applicant has not met this burden of proof.

The term “consisting essentially of” is not deemed to distinguish claims over the teachings of the prior art. While it is recognized that the phrase “consisting essentially of” narrows the scope of the claims to the specified materials and those which do not materially

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affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, “consisting essentially of” is construed as equivalent to “comprising.” Furthermore, the burden is on the Applicant to show that any additional ingredients in the prior art would in fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant’s invention, See MPEP 2111.03.

In light of these facts, the rejection, as applied to new claims, has been maintained.

Applicant traverses the rejection of claims over Masuyama *et al.* in view of Steffl (DE 101 34 142). Applicant’s arguments have been considered, and the rejection has been maintained in view of translation of the foreign reference. Steffl teaches use of poly(styrene-co-maleic acid imide) as compatibilizing polymer; see paragraph [0019].

Applicant traverses the rejection of claim 14 over Masuyama *et al.* in view of Paeglis *et al.* (U.S. 5,569,516). Applicant’s boilerplate argument is not found persuasive because it does not explain adequately why one having ordinary skill in the art would not have found it obvious to use the carbon black shown in Paeglis *et al.* as the carbon black filler in the composition of Masuyama *et al.* In light of this fact, the rejection, as applied to new claims, has been maintained.

Applicant traverses the rejection of claims 19 and 20 over Masuyama *et al.* in view of Saito *et al.* (U.S. 5,104,937). Applicant’s arguments have been considered, but they are moot in view of the fact that claims 19 and 20 were canceled.

Conclusion

This office action is non-final. An English translation of Steffl (DE 101 34 142) has been furnished.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Rip A. Lee/
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June 14, 2008